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OCTOBER, 1911

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L. H. Bailey, Director.

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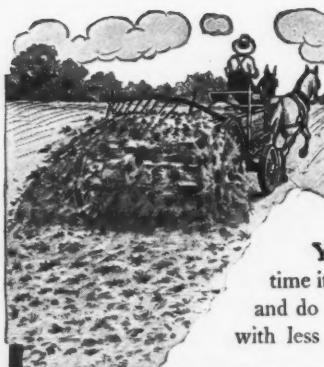

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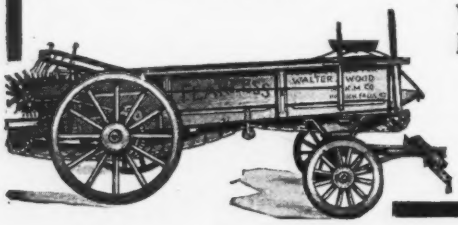

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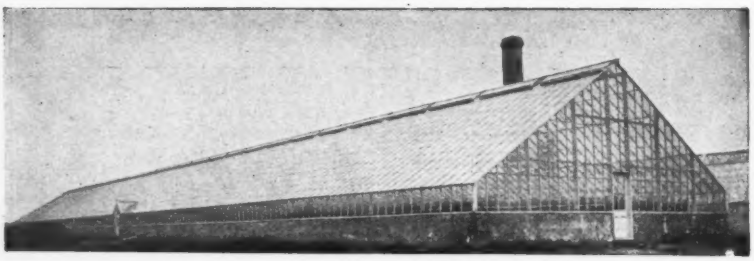

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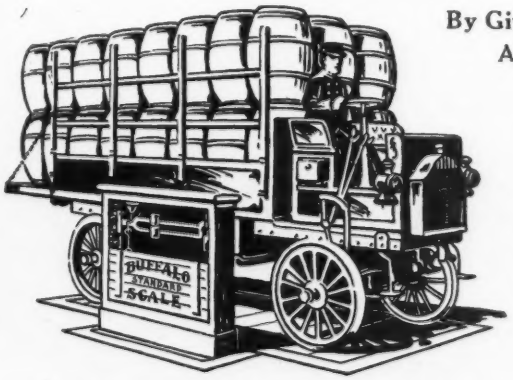

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THERE are three ways for you to suggest improvements in the Co-op. Tell the manager, he wants to know your opinion. The members of our Board of Directors would be pleased to see you. Prof. Wing is on the Board from the College of Agriculture. You will also have a representative on the Student Advisory Committee. Watch your bulletin board for his name.

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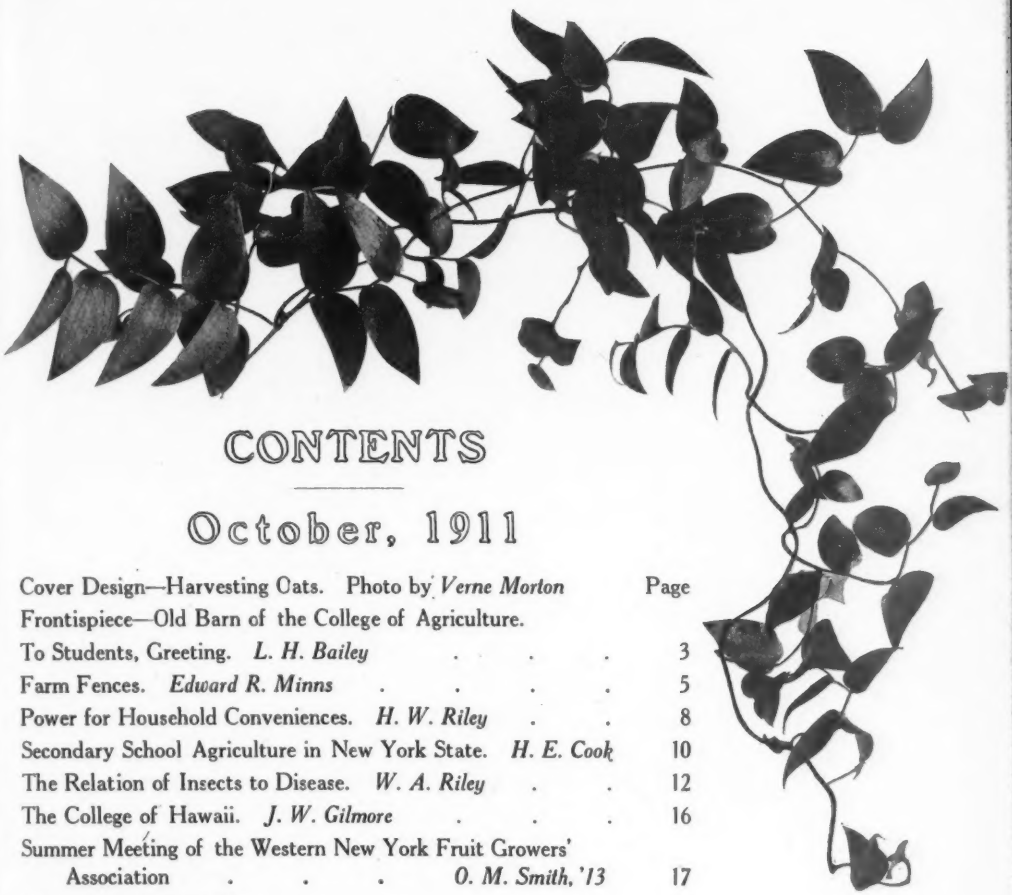

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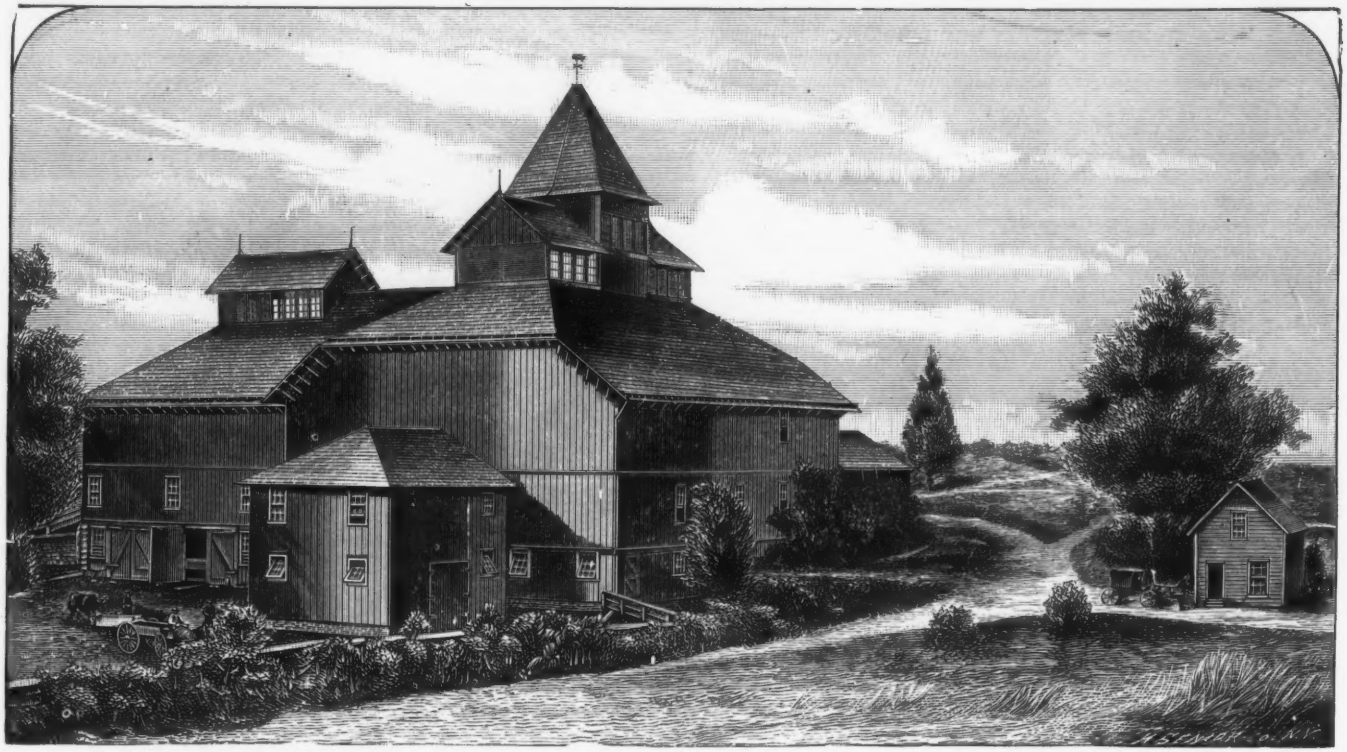


OLD BARN OF THE COLLEGE OF AGRICULTURE TORN DOWN TO MAKE ROOM FOR NEW DOMESTIC SCIENCE BUILDING

(*See page 23*)

Courtesy of the College of Agriculture

Courtesy of the College of Agriculture

The Cornell Countryman

Vol. 9 OCTOBER, 1911 No. 1

To Students, Greeting

BY L. H. BAILEY

We have all come back to work. There is no excellence without labor. One cannot dream himself into either usefulness or happiness. Every person needs the dream, if he is to be sensitive to his place in the world and if he would really accomplish; but the result comes only through good application.

I hope that all of you have had a busy summer. It is now much the practice to waste the summer. Vacations often result in more harm than good because they are likely to be vacant. The most effective men do not too often break training, although they may change their work. The real farmer does not waste much time in idle vacation; and in this respect he is contributing good example to all our people. Zealous work is good vacationing.

So, if you have not droned your summer away, you will come back keen for work and you will easily find yourself usefully occupied. The quality of your work, as also your healthfulness and satisfaction in it, will depend largely on the way in which you organize your time. If you play, you will have a time for play and you will play with spirit. You will study without haste and without friction if you order your work well. I find that most students who complain of lack of time do not know how to economize time. Their days are unplanned and, therefore, lack progressive motion. Very few students really know how to study. The busiest persons usually have the most time: they work quickly, surely, lose no motions, and overlook the non-essentials.

Very many persons lose their way because they get flurried. They "flare up" and are then "upset." All good work depends on an even temper. One can acquire a level spirit, if he does not chance to be born with one: it is merely self-control. In fact, I think the most effective evenness of keel is one that is held in turbulent seas. I suggest that each student give himself lessons this year in the gentle art of keeping cool. Many troubles solve themselves if they are let alone.

I like to emphasize the time-element in education. We think of this as a high-strung and rapid age; but it need not be a hurried age.

One may walk very fast without being in a hurry. In college, particularly, do we need to take time. Things must soak in now if they ever are to soak in. If I could be sure that the student would take proper time and patience with his work, I should be glad to see the amount of subject-matter reduced by one-half. Education is a process of ripening. One does not have equal opportunity for ripening after he leaves college.

The student in agriculture in these days is fitting himself for a great work. The burden of civilization will fall more and more on the man who produces the supplies out of the earth. We begin to see the end of the process of merely appropriating the supplies that lie in new and untried places. The attention of the people is being halted to this act, and also to the necessity of reaching effectively the social and educational and immaterial needs of the background of our civilization. We have been talking much about marginal men; but it is more important that we talk about bottom men.

Students in agriculture are doing much more than fitting themselves to follow an occupation. They are to take part in a great regeneration. This regeneration will come gradually and perhaps even slowly; and this is all the more reason why it will be worth while to be connected with it. Rural civilization will express itself in the voice of the people. So you are coming here to take part, and to assume a hopeful responsibility. I want you to have the steady forward look.

Your college days should be a conscious preparation for this larger usefulness; you should be ready when the time arrives for your commencement of it. The small college world, even though an ideal world, should typify in some degree the world of wider service. Your first duty is to your formal studies, but it will not be worth your while to come to college if you acquire only subject-matter. I hope you will work with your fellows on questions of student interest, take active part in the affairs of the college, and train yourselves in good public spirit. Loyalty to an institution is a kind of patriotism; when it expands it becomes loyalty to a neighborhood, a state, a nation, and to humanity.

You are now in training to enter the fraternity of those who are building a sufficient country life.

FARM FENCES

By Edward R. Minns
Instructor in Farm Practice, Cornell University

WHEN Central New York was first settled the forest clearings needed fences to protect the pioneer farmer's crops from wild beasts. Domestic animals needed this protection also for it was not safe to let them run at large. Timber was plentiful, if not an actual encumbrance to the land. Some of it was split into rails for the old "worm" fences which are now disappearing. The stumps of shallow rooted trees like pines where hewn off on one side and dragged into rows to serve as fences. Where stones were so abundant as to hinder cultivation, they were often piled between and around the stumps and in the rail fence corners. That was the quickest way of getting rid of them. If the stones were of suitable size and shape they were often built into a wall without mortar.

Stone walls built from boulders are now to be found tumbled down into mere heaps and ridges of stone. Rail fences have decayed, leaving a wealth of brush and weeds and perhaps piles of small stones. The stump fences have resisted decay, but are now disappearing, leaving brush and stone-piles to show where once they stood. With the increase in labor cost and decrease in the timber supply some effort was made several decades ago to economize material in rail fences. The use of iron wire made it possible to fasten stakes and rails together into a modified form of rail fence. Such fences were sometimes built from older ones using what was good of the old fence. It required less material, was straighter and occupied less space on the land. The mortised post and rail fence represented another attempt to economize timber and secure a narrower fence. Board and post fences came into use after the introduction of power saw mills. Board fences are neat and give but a small opportunity to harbor weeds and brush, but they catch the wind and when the posts decay at the ground line or are lifted by freezing the fence is soon out of repair or blown down.

When iron fence wire came into use it was used to some extent woven with wooden slats or pickets. The factory made slat fence had three turns in the wire strands between slats. The slats were sawed and nearly uniform in thickness, and as a result of this, they failed to stay in place in the fence because the wire had no elasticity. Another kind was built where the fence was to remain, using split pickets which varied in size, but giving each pair of wires a half turn only between pickets. These fences did not lose their pickets so easily. The resistance to the wind of all picket fences was a disadvantage. High snow drifts often piled up on the sheltered side, then the slats decayed as did also the posts and the fence went down.

Wire fences came into use most rapidly in the treeless regions of the western States. The eastern farmers adopted wire fences more slowly because their farms were already fenced with wood or stone. When barbed wire was first used some costly lessons had to be learned. Valuable animals were seriously injured by becoming entangled in it. A particularly cruel form of it consisted of a ribbon of galvanized iron about three-eighths of an inch wide on which were clasped double pointed barbs which resembled saw teeth. Such a fence was dangerous to horses and cattle turned against it. Another form consisted of a twisted iron ribbon, the edges of which were cut to form small points. The use of diamond-shaped barbs on wire twisted from two strands and all coated with paint was tried also. This kind rusted badly and inflicted damage enough if not able to cut deeply. More humane forms of barbed wire came into use and attempts were made to build fences by using alternate strands of barbed and smooth wire in the same fence. With posts one rod or farther

apart it was found impracticable to keep cattle and sheep from reaching through the fence built partly or wholly of smooth wire. Sheep, particularly, on account of their wool had little fear of such a fence. Some cattle have such thick hides that the points on a humane barbed wire cause them very little annoyance. As for swine, it is said that a hog will go wherever he can get his nose through, mindless of scrtaches from wire or thorns. Some attempts were made to make such fences more effectual by fastening upright wooden or wire stays to the line wires and close enough together to prevent spreading the wires apart. Fence manufacturers devised stiff vertical wire stays which were securely fastened to the horizontal wires of a fence. This method made fences more expensive and not altogether satisfactory.

A FAILURE IN FENCE CONSTRUCTION. THE END-POST WAS NOT PROPERLY ANCHORED. THE SLACK LINE WIRES ARE SUPPORTED BY THE STIFF DOUBLE STAYS.

Galvanized woven wire poultry netting has been in use for over twenty years. Its success led to the use of light forms of woven wire for farm fences. Fences woven from soft wire do not keep their shape well, and iron wires of small sizes have insufficient strength and elasticity for restraining the larger farm animals. The manufacturers saw that if they could make a fence strong enough and cheap enough for farm uses it would become popular. They had to use steel instead of iron to get the strength and elastic quality. The steel wire was coated with zinc before woven but if the normal amount of zinc coating remained on the wire after it left the spelter bath, it was cracked by the bending process in weaving and purchasers objected to that. To overcome this, the manufacturers wiped off the hot spelter from the wire just as it left the bath. Thus the galvanizing process left a very thin coating of zinc on the wire. The fence looked all right when finished and erected and the cost was reasonable, but the users were badly disappointed in its lasting qualities. In some cases the wires rusted to pieces in less than two years. Five years ago complaints about the quality of wire fences were common in the agricultural papers. The United States Department of Agriculture was importuned to investigate the subject and Professor A. S. Cushman of the Office of Public Roads undertook the work. Fence users charged that the steel wire was of inferior quality and that the galvanizing was worthless.

The manufacturers replied that they were using the best wire they could get, that the farmers demanded cheap fences and were not willing to pay the price for better fences. The experiments made by Professor Cushman and the results of observations on fences in use have made these facts apparent:*

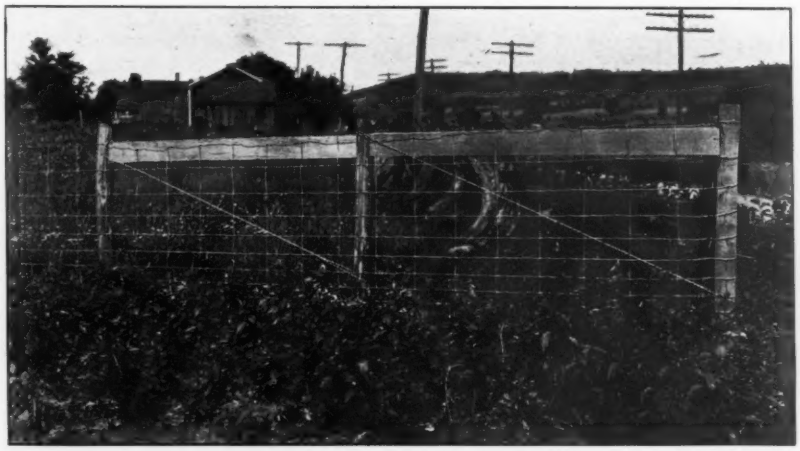
(1) Improvement in the quality of steel used for fence wire was possible. No one should expect, however, that modern steel will resist corrosion as did the iron made years ago. To make fences stiff and elastic, steel wire must be used. Lately some manufacturers are advertising that their fence wire is made of open hearth steel as distinguished from Bessemer steel.

(2) The quality of the zinc coating and its distribution needed improvement. More even and heavier coating with zinc is now possible and buyers of woven wire fences should regard cracking in the zinc coating at the bends of the wire as a sign of honest galvanizing.

(3) The larger sizes of wire carry a relatively heavier coating of zinc. Because zinc is electro-positive to iron, a corosive agent such as rainwater will destroy the zinc first. The large fence wires are therefore better protected than small ones and it follows that the vertical stay wires should be just as large as the horizontal ones if they are desired to last as long.

(4) Because of the tendency for steel wire to corrode it is not wise to put both hard steel and mild steel wires in the same fence, for the mild steel will corrode more rapidly than the hard steel if they are in contact.

(5) The life of a galvanized steel wire fence can be prolonged by painting it with a special paint which inhibits corrosion.



A WELL ANCHORED AND BRACED END FOR A HEAVY WOVEN WIRE FENCE. THE LINE WIRES ARE TIGHT AND ARE WRAPPED AROUND THE END POST.

Various kinds of wire fences are now numerous on the market, but they may all be placed in two classes. In one class are several styles which are sold as coils of line wire and bundles of stay wires with special tools for securing the stays to the tightly drawn line wires. The best of these fences are made of heavy wire and can be expected to give good service if properly set up. Such a fence is well adapted to uneven ground and with special stays can be made quite ornamental in appearance. More time and skill is required to erect such a fence than

*"Information in regard to Fabricated Wire Fences and Hints to Purchasers." Yearbook of the Dept. of Agr. 1909.

when it is already woven, and this adds to the cost.

All farm fences woven at the factory from galvanized wire are in another class. Some manufacturers are now prepared to fabricate fences from wires ranging in size from No. 7 to No. 14 gauge. Most of these fences are made with stays attached at right angles to the line wires but at such distance apart as will best suit the purchaser. These styles can be adjusted to uneven ground by careful work in erecting the fence. A few are made with a triangular mesh. It is impossible to adjust such a fence to uneven ground satisfactorily. The makers of wire fences of both classes have special designs for fences intended to restrain separate kinds of live stock as well as fences intended to turn all kinds. It is not economical to erect a fence having more line wires or stays than will be needed. In view of our present information, farm fences having wires of lighter gauge than No. 9 are not likely to be satisfactory. In many cases it will be found better to use a woven fence of less height than required, completing the fence with one or two strands of barbed wire. The latter is not likely to be harmful on top of the fence and will protect the smooth woven wire below it.

Last but not least, it is very important that the modern elastic steel fence should be drawn very tight and securely fastened to the end posts. No effort should be spared to anchor and brace the end posts very securely. The contraction of the steel wires in cold weather increases the strain on the end posts at a time when the ground is likely to be soft. All corner posts and those wherever the fence changes directions are subjected to stress of a similar kind and should be made fast and firm in the ground. Reënforced concrete end and corner posts moulded in place are desirable because permanent. A decayed wooden line post can easily be replaced but it is more difficult to put a new end post in place when the fence is well secured to it. Steel posts with concrete bases have been used a little but the cost is still prohibitive in regions where there are any forests.

POWER FOR HOUSEHOLD CONVENIENCES

By H. W. Riley
Assistant Professor of Farm Mechanics, Cornell University

THE introduction of the numerous devices now to be found for lightening household labor, marks a distinct advance in the process of reducing the drudgery of housekeeping. This is most accentuated in laundry work, water pumping, sweeping and dish washing. The vacuum cleaner, the washing machine, the wringer, the mangle and the power pump, have made it possible to perform mechanically the first three of these four main types of drudgery. The devices so far developed for dish washing are not so well perfected as are the machines just named, and they therefore will not be considered here.

The main uses of power in the household then are in connection with the water supply, the laundry, the vacuum cleaner, and to this list may be added a sewing machine, a small grinder and polisher and also the cream separator if this is installed in the house.

Having decided upon the purposes for which power is to be used, the next point to be considered is the form or manner in which it is needed. That is, whether it is wanted as reciprocating motion, because on this point depends the type of transmission system to be employed. Pumps for instance, in the styles usually used about the house, must have reciprocating motion at the piston to operate them, but if found convenient rotary motion derived from a moving belt or rope may, by means of a device called a pump jack, be converted into reciprocating motion before being applied to the pump piston rod. Washing machines and vacuum cleaners are regularly put on the market in both forms, some being operated by pulleys and some by levers. Wring-

ers, mangles, sewing machines, grinders and polishers all use rotary motion for operation.

With these points in mind the source of power must be determined. This will depend on local conditions. If there is available a water power of sufficient size, the water may be carried through a pipe to the house and there by means of a turbine or an overshot wheel be converted directly into power, provided adequate drain pipes for the water can be provided. If natural conditions do not permit of such an arrangement, a turbine located at the power site may operate an electrical generator, the current from which may be transmitted through wires to a motor at the house, thus providing rotary motion.

If no water power is available it may be that there is a dairy on the place in which a steam boiler is fired up every day. In such a case a thermally insulated pipe laid in a trench might conduct steam to a small steam engine in the cellar which could thus be operated at practically no trouble or expense. The idea of using power from a windmill either directly or through a dynamo or storage batteries is not practical except possibly under some very unusual natural conditions, certainly not in New York State.

While special conditions may make possible some one of the plans just mentioned, the great majority of problems require for their solution the use of the gasoline engine. This may be of either the two cycle or four cycle type; probably the latter with hit-and-miss governor and either contact spark or jump spark is the most economical and reliable. But little power is required, one-quarter horse-power being sufficient for most purposes except for stationary vacuum cleaners and for pumping. One horse power or at most one and one-half horse power is amply sufficient for all practical purposes. Engines of larger sizes will simply waste gasoline. Before installing a gasoline engine in the house it is necessary to secure a permit from the insurance company and care should be used in following their instructions, as gasoline is dangerous.

If the engine be located in the cellar, the power transmission devices used will consist of belts, pulleys and shafting which can be easily arranged to suit local conditions. If, however, the engine be located in a building to avoid the noise, considerable ingenuity must be employed in selecting the transmission system. The most flexible and the neatest plan is to have the engine run a dynamo and thus provide current to run one or more motors in the house, the connection being made by overhead wires conveniently located.

Should this plan seem too expensive direct mechanical connection may be secured by means of a wire rope running overhead, or in a boxed tube under ground connecting pulleys at each end and so furnishing rotary motion. Or by belting the engine to the pump jack, reciprocating motion may be secured which can be conveniently and efficiently transmitted underground to the house by a small iron pipe sliding back and forth in a larger iron pipe of suitable size and suitably lubricated, which shall serve as a guide for the working member. This plan is in successful operation and should be applicable in many places.

Another plan of more limited applicability is to have the engine run a pump, water from which is forced through pipes to small water motors of from one-eighth to one-quarter horse-power, located at any desired point in the house from which the waste water can be conveniently drained. Unless ample water supply is available, this water must be returned to the pumps to be used over again. If the return is not possible and the supply limited, the plan is not feasible.

The problems involved do not demand a large engineering knowledge but require rather that native common sense and ingenuity which should be inborn in the American farmer. There are many cases in which power should be made available for the operation of machinery for household work and the whole problem is presented as one really worthy of careful consideration.

SECONDARY SCHOOL AGRICULTURE IN NEW YORK STATE

By Herbert E. Cook

Dean of the N. Y. State School of Agriculture, St. Lawrence University, Canton, N. Y.

THE State of New York began its secondary educational work without any definite plan. Because of this indefiniteness some of our leading men were opposed and so expressed themselves with considerable force. Politics were made the scape-goat and credited with launching upon the State an unrelated and maybe disastrous plan. We have not the time or disposition to discuss this phase of the question; suffice it to say that no disaster has come to us.

The air was charged with a feeling that something must be done if the country life of our State was to be developed, beyond the capacity of our State College. The writer who has had for twenty years more or less acquaintance with our leading thinkers and actors in this field is inclined to say that the present wholesome situation is due to a broadminded and generous sentiment which has prevailed among our leading men in the College, Experiment Stations, Department of Agricultural, and Educational Department, the agencies which have been moving together for common good.

I should say that whatever success had come was due to willing, ready and conscientious men rather than to the plan of action. I have been free to say from the start that any effort to formulate a related plan of work throughout the State would be a hindrance and possibly disastrous. In other words, I preferred to trust the men who were interested in the work rather than to trust men who would speculate on the future needs. From this point of view the writer has urged against the establishment of any more secondary schools similar to those now in operation. These schools are now doing probably twenty-five per cent and may be fifty per cent of their work that could as well be done in the local high school, at very much less expense to the State.

I do not wish to be understood as favoring the discrimination against country boys from the grades. These men constitute our most hopeful resource. If the high school was properly organized and related in its work to these secondary schools, young men would take more kindly to the high school and see in it a stepping stone to a more elaborate and finished course which these secondary schools could give. It is my opinion that we need to-day a relationship between the high school and the secondary agricultural school a great deal more than we need a relationship between the secondary school and the State College. What we want to do, as I see it, is to train men for the farm and good citizenship. Such a course as I have mentioned will do it. This plan does not mean less men in the College. That will all take care of itself. This farmer man who is to plow and sow and reap, demands of the State as much education as he can use in the present development of our country life. If he has more than he can assimilate into his business and profit thereby it may become a positive damage to him.

It seems idle not to measure the Agricultural Educational needs of the time by the opportunity presented to use that education.

The difficulty now in relating our courses to the College is the fact that the most of our men need a finishing course. If we give them two years similar to two years in College they have not received here that condensed education which their business demands. The men have spent their time but have not received the training they need.

Our course at St. Lawrence opens in September and closes in June. From the standpoint of short course work there is a disadvantage because of its interference with farm work.

I am convinced that the full college period of time has a very decided advantage in a two years' course known as a finishing course. It obliges the men to set apart two years for their education. In that time they get some real mental training. The short course man gets some facts and some enthusiasm which are helpful.

As soon as field work is open in the spring an even number of men are selected, the selection being based upon scholarship and adaptability, half working each alternate day and taking class room work each alternate day. For this work they receive no compensation. It is simply substitution and is credited on their grade cards. After school closes in June these men are paid for their labor until opening in the fall. These men are first year men. The plan has been very satisfactory. Two years of school with one season of actual farm work is a very fair equipment.

Everyone recognizes the necessity for practical work as they do for mental training. Our purpose is to combine these in a manner that will give the farm touch coupled with mental poise and force.

The open country has use for men who have a broad human grasp of their business and the affairs of the State and nation.

The open country also has use for men trained in the technique of the farm.

A proper blending of these requirements will build a safe and desirable citizenship.

The registration at St. Lawrence State School of Agriculture, including domestic science and short course (three months) dairymen has increased in four years from 14 to 151.

It is early in the life of the Institution to determine the success or failure of graduates. Not less than ten years will be required to do this. Those who appear the most capable at the start, often give way later to the slow patient plodder who is never spectacular but always on his job.

The Institution has also under way an elaborate system of farm accounting for the purpose of ascertaining cost of production. Two bulletins have been published. We have labored upon land nearly abandoned, with buildings incomplete and with students as workers. This situation has made the expense somewhat higher.

The business of farming is very largely a family affair. No cash account is kept of the labor and so, generally speaking, little is known of actual cost of production. The writer feels confident that this work is warranted and may prove to be of value to other sections than our immediate locality.

The farm is now divided into two parts, one section is devoted to demonstration and experiment, the other managed as a commercial proposition.

THE RELATION OF INSECTS TO DISEASE

By William A. Riley
Assistant Professor of Entomology, Cornell University

TO the popular mind insects are of economic importance in so far as they are an annoyance or direct danger to man, or are injurious to his crops. It is only within the past decade that there has sprung into prominence the fact that in another and much more insiduous manner that they may be important agents in the dissemination and transmission of disease. The diseases so disseminated in this climate are among those especially prevalent in rural communities, and a knowledge of their sources should be universal.

If we consider the various ways in which insects may affect health, they fall into three general groups:

1. Through their bites or their stings they may be directly poisonous.

2. They may be parasitic and feed directly on the tissues of their human host.

3. Harmless and merely annoying in themselves, they may transmit and disseminate disease. In this, their most important relation, they may act in one of three ways:

(a) As *simple carriers* accidentally transporting germs which they deposit on the body of man, on his clothing, eating utensils, or food.

(b) As *direct inoculators of germs* which adhere to their body or to their mouth-parts, to be thus deposited on wounded surfaces or to be injected by the bite of the insect.

(c) Finally, as *intermediate hosts* they may be an essential factor in the life cycle of the disease-producing germ. Without the insect the germ could not develop and the disease which it caused would be absolutely stamped out.

The first two groups,—those of poisonous and parasitic species, need but brief mention. In this, as throughout the discussion, the term "insect" is used in its broad, popular sense, to include not only the true insects but the spiders, mites and other related forms. The venomous properties popularly attributed to these little animals is in most part wholly imaginary. The belief has not even the apology of that concerning common snakes, for insects are neither terrifying in appearance nor are many able to inflict serious wounds. Yet it should be recognized that there exist a few poisonous species and any discussion of these must take into consideration the fact that their relative virulence depends upon the susceptibility of the individual affected.

Of all the supposedly poisonous kinds, the spiders are most generally feared. So wide-spread is the belief in their venomous nature and so many are the circumstantial reports of injury due to their bites that one would not seem justified in dismissing all such accounts as fabulous. And yet, we may safely say that at least in so far as the Northern States are concerned, there is not on record a single authentic case of injury due directly to spider bites. The writer has personally experimented with many of our largest native spiders. In no case was the pain any greater than that caused by the prick of a pin.

Of the true insects there are several species whose bite is painful. The "kissing-bug" scare of a few years ago, though primarily hysteria, was based upon authentic cases of severe bites from these species, which only exceptionally attack man. Whenever the periodical cicada, or the so-called "seventeen-year locust" appears, stories of its poisonous bite are common. They are wholly without foundation.

A few caterpillars are clothed with nettling or stinging hairs, whose effect is strikingly dependent upon the susceptibility of the individual coming in contact with them. The most serious pest of this nature in the New England States is the larva of the imported brown-tail moth, which is greatly extending its range.

Of the second group, the truly parasitic forms affecting man are those

living on or within the skin. The most important of these from the medical viewpoint is the "itch-mite," which burrowing into the skin and increasing astoundingly in numbers causes the disease variously known as "seven year itch," "Norway itch," or "scabies." This disease, formerly a scourge of camp and other crowded places is by no means rare at the present time.

All of these methods by which insects may affect the health of man have long been recognized and, until recently, have been the only phase of the subject which have received serious attention. But the discoveries of the past few years have opened up an almost unsuspected field and now, all over the world the attention of medical men is focussed upon the third phase of the subject and we are just beginning to realize the enormous part which insects may play in the transmission of disease. No other discovery since the demonstration of the germ theory of disease has done more to advance the science of preventive medicine. It is important that every educated person have a knowledge of the discoveries which have revolutionized our methods of combating some of the most dangerous diseases of mankind.

The consideration of the subject may be from the three view points already suggested, viz., insects and their allies may be considered as simple mechanical carriers, accidentally scattering disease germs; secondly, as direct inoculators; thirdly, as intermediate hosts of certain disease-producing germs which undergo, within the insect, certain changes before they are able to develop anew in man.

INSECTS AS SIMPLE CARRIERS OF DISEASE GERMS

As typical of the way in which insects may mechanically carry and scatter disease germs we may consider the agency of the house fly in spreading typhoid fever and other intestinal diseases. When we consider that bacteria are omnipresent and that they are so minute that the point of a pin may carry enough to give a man the lockjaw, it doesn't need a doctor nor yet a scientist to tell us that an insect the size of a fly may carry literally millions of these suspicious organisms. By careful experiment it has been found that a single housefly may carry at one time as many as *six million, six hundred thousand,* living germs. It then becomes a question of whether they have access to the kinds that cause disease.

The housefly is one of the filthiest of insects. It has its birthplace and lays its eggs by preference in horse-manure, but that which makes it especially dangerous to man is that it will breed in and feed upon human excrement, as well as other filth. The life history, from egg to mature fly, is completed in about ten days, and there may be at least a dozen generations in a season. It has been estimated that under perfectly favorable conditions, the descendents of a single over-wintering-fly might by the end of a season number 190,000,000,000,000,000!

Typhoid fever, infantile diarrhoea, and certain other intestinal diseases are specific germ diseases—they are not caused by dirty water, or by sour milk, or by any other thing which has not become contaminated by excrement containing the germs of the disease. These germs may come from sewerage which flows into the well, from utensils rinsed with the polluted water, or they may be carried by flies which have fed on excrement. Consumption, too, is due to a specific germ, which may be disseminated by flies which have fed on sputum.

Unfortunately, in the appearance of the fly which comes so blithely to sup with you, or with which you fight for food in some public eating house, there is nothing to indicate whether it has just fed upon some festering sore, or the disease-laden discharges of a typhoid patient, or whether it has merely been feeding upon some attractive bit of putrescent or decaying animal or plant matter. The only safety is in warfare on the whole tribe.

INSECTS AS DIRECT INOCULATORS OF DISEASE GERMS

That insects may directly inoculate disease germs admits no doubt. Just as the physician may abrade the skin and introduce the germ of small-pox in vaccination, so a biting or piercing insect having fed on diseased tissue might transfer the germs to a healthy individual. There is clear evidence that flies may thus transfer gangrene from patient to patient in hospitals, and there is also evidence that anthrax may be borne from diseased to healthy animals by biting flies. The most striking case is that of the transmission of bubonic plague. This fearful scourge, which from time to time has ravaged almost every country of the old world and which not long since gained a foothold in California, is primarily a disease of rats and other rodents. Recent studies have shown beyond all question that its usual method of transfer to man is by means of fleas which have fed on diseased animals and which deposit the bacteria on the skin of man and they by their bite directly inoculate.

INSECTS AS INTERMEDIATE HOSTS OF DISEASE GERMS

Important as insects are in the transmission of these and probably other similar bacterial diseases they are only one of various sources of infection. Kill all the insects concerned and the disease would still exist, and be spread by other agencies. The third type, where the insect is an essential factor in the development of the parasite is the most important for, as stated above, extermination of the insect means absolute extermination of the disease.

Under this heading, the relation of the mosquito is not only typical but is of the most interest in this climate. It is now known absolutely that malaria is not the result of "bad air," misasm, swamp exhalations, or night air, but that it is caused by a little microscopic animal which feeds on the red blood corpuscles. The easiest and only sure way of diagnosing malaria is the finding of these minute parasites in the blood. They are transferred from man to man, and thus the disease is spread solely through the agency of some blood sucking insect. This insect is a mosquito of a particular variety,—the Anopheles mosquito. The malarial germ will not develop in any other insect and hence the control of malaria is a question of the control of the Anopheles mosquito. Here as in the case of any pest, control measures must be based on a knowledge of the life history.

The Anopheles mosquitoes pass the winter as adults and early in the spring deposit their eggs wherever there is standing water,—in tin cans, watering troughs, barrels, tubs, and pools. From these eggs the "wrigglers" or larvae hatch. Unlike other mosquito larvae those of Anopheles do not hang from the surface of the water by the tail but lie parallel with the surface. In about twelve days, in midsummer, they transform to the pupal stage and in three or four days the adults emerge. Thus the life cycle may be completed in a little over two weeks.

This mosquito is unable to transmit malaria unless it has fed on a man who is infested with the germ. Thus the Anopheles exists in regions where malaria is as yet unknown. If a malarious patient, or one who had apparently recovered but harbored the germs, were to move into the region and infect the mosquitoes they would become capable of spreading the disease.

A number of other diseases are now definitely known to be due to germs which are transmitted solely by insects which act as intermediate hosts. One of the greatest triumphs of preventive medicine is the control of yellow fever, based on the demonstration of the fact that it is a mosquito-borne disease. The mysterious "sleeping-sickness" of Africa which in one year claimed five hundred thousand victims, is borne by the little tsetse fly; elephantiasis in the tropics is mosquito-borne; certain relapsing fevers of the tropics and of our western states are

transmitted by ticks, as Texas fever, the most serious disease of cattle.

METHODS OF CONTROL

In view of these facts and of the rapidly accumulating evidence that still other diseases may owe their prevalence to insects it is clear that the control of insects affecting man is more than a matter of good housekeeping or of convenience—it is one of the utmost importance from the viewpoint of public health. As the housefly and the mosquito are the chief offenders in the Northern States a few suggestions regarding their control are offered.

Although attempts to exterminate the adult insects are futile much good may be done by properly screening houses and in the case of the fly, by protecting foods. The most efficient preventive measures are those directed against the early stages.

The housefly breeds primarily in horse manure. As its life cycle requires ten days or more, manure should not be left standing about barns, but wherever feasible should be spread on the fields at least once a week.

Chemical treatment of manure piles is of little avail and cannot be recommended as a practical measure. On the other hand, in city barns a thoroughly practical and efficient method is to keep the manure in tightly closed receptacles until it can be carted away.

Abolish the open privy, or, if this is impossible, keep it screened from flies and make liberal use of earth or lime to cover the feces.

Thoroughly disinfect all discharges from a typhoid patient. This is of fundamental importance in the control of the disease for it enormously reduces the chance of water contamination as well as transfer by insects. Unfortunately, this is not alone sufficient, for the typhoid bacilli may be present in the discharges long after the patient is apparently well.

Keep all milk bottles covered and all food protected from flies.

The misquito should also be fought through destruction of its breeding places. Leave no stagnant water, for where there is none, the mosquito cannot breed. Drainage of swamps not only accomplishes much against the mosquito but furnishes valuable land for agricultural purposes. Look out for inconspicuous breeding places,—the empty cans or bottles, old cisterns or rain barrels; in fact anything that may store water for the ten days necessary for mosquitoes to breed.

Where destruction of the breeding places is not desirable or feasible, much may be accomplished by treatment of the water with kerosene or by the introduction of small fish which feed voraciously on the larvae.

The old time advice not to expose one's self to the night air in malaria-ridden regions is still applicable, though we now know that any virtue in this procedure is due to protection from the mosquito. In such a locality any and all measures along this line, such as effective screening, and sleeping under mosquito canopies, are well worth while.

THE COLLEGE OF HAWAII

By John W. Gilmore, B.S.A. 1898

President of the College of Hawaii

THE College of Hawaii is the youngest of the Colleges founded on the Land Grant Act of 1862 and in order it is the 68th institution to benefit by this act or those supplementary to it.

The College was established in 1908 with five students in preparatory courses. In 1909 the entrance requirements were increased to the usual 15 credits of approved high school work and preparatory courses abolished, and the courses of Agriculture, Engineering, Science, and Household Economics were instituted, each leading to its corresponding degree. At the present writing the College occupies three temporary buildings and is so overcrowded in several of its departments that all qualified students who apply cannot be accommodated. The faculty has grown from two in February, 1908, to seventeen now, and two or three more will be added during the coming year.

The Legislature of 1909 was asked to provide both lands and permanent buildings. To provide both was considered a heavy draught on the resources of the Territory for a single year so the request for the building was dropped and emphasis was placed on the needs for land. Consequently sixty acres of suburban property were purchased and thirty acres were set aside by the Government. The total area commands a picturesque view of both sea and mountains, is of good soil and has a market value of $125,000.

The 1911 Legislature, just adjourned, appropriated $75,000 for a permanent building on this tract and $20,000 for maintenance expenses. It is hoped that the first graduating exercises may be held in this new building in June 1912.

In establishing the College of Hawaii, the two large problems that have been encountered are those of creating a sentiment on the part of the students and parents for the type of education that the College has to offer, and of convincing the people at large and the Legislature as their representatives that moneys appropriated for such an institution can be invested in no other way that will bring to the interests of the State a larger return in terms of good citizenship and efficient service. That these problems are being solved is shown by the increase in students and by the financial and moral support that the College has received.

The College of Hawaii helps to solve the problem of those students who, for various reasons, do not go to the larger institutions of the mainland for their college education. But, in addition to this, the opportunity is recognized of supplementing in a way the objects of education of similar institutions of the mainland. Most of the state colleges in arranging their curricula try to meet local needs. Not only do the curricula of colleges from east to west and from north to south reflect the general industrial and social conditions of the particular section, but often the subject matter of the courses offered is correlative in this respect. The College of Hawaii has an opportunity to develop courses and subject matter that shall relate particularly to tropic zone conditions. With this object in view, perhaps no other country or territory within the tropics offers the possibilities in this respect as does Hawaii. We have a cosmopolitan population, consisting of native Hawaiians, Japanese, Chinese Koreans, Portuguese, Spaniards, Americans, Europeans and other nationalities all living together peacefully and contentedly, and compared with many other regions, quite prosperously. This association of nationalities manifests large and interesting problems in sociology, economics and government that apply not only here but elsewhere in the tropics.

In agriculture especially, does Hawaii excel both in problems unsolved as well as the development of some industries. Sugar production is the main industry, and in no other part of the world is so great tonnage per acre secured, or are factory methods of extractions so highly perfected. Other agricultural resources, such as pineapples, rubber and dairying are of great importance.

Among tropical climates that of Hawaii is preëminently suited to study. The temperature is not hot, the thermometer rarely rising above 90 degrees, and at the same time the temperature seldom drops below 60 except in the higher elevations where freezing may be experienced. With the extensive and varied activities situated in so suitable an environment the College will appeal to students in all parts of the world who want training in activities pertaining to the tropics.

SUMMER MEETING OF THE WESTERN NEW YORK FRUIT GROWERS' ASSOCIATION

By O. M. Smith, '13

FRUIT growers from all parts of the State gathered in large numbers at Hilton, N. Y. on August 11th and 12th to attend the annual summer meeting of this Association, and the meeting was one of the most successful in the history of the Association.

The plan of the meeting consisted of an indoor session on the afternoon of the 11th, and inspection trips to orchards in the vicinity on the 12th.

At the executive session Mr. Lloyd Tenney welcomed the visitors and explained the plans for the orchard excursions. Pres. Clark Allis spoke and expressed appreciation of the preparations made for the entertainment of the visitors. Mr. J. D. Remington, Industrial Agent of the N. Y. Central Railway, explained that the railroad company was in many ways improving facilities for handling fruit. He predicted that within five years New York will ship more peaches than any other section of the United States and that 10,000 cars will be required to handle the peach crop. Prof. P. J. Parrott, of the Geneva Experiment Station next discussed the pear psylla. He explained that a thorough application of lime-sulfur spray to the trees, just after the eggs were laid, would prevent the hatching of the eggs and the consequent depredations of the insect. Commissioner P. A. Pearson spoke of the land and irrigation show to be held in New York next November. He said that the Southern and Western men proposed to show the advantages of their respective localities but that New York State would present an exhibition to show that opportunities are as good in this state as anywhere. Prof. H. H. Whetzel discussed the subject of cankers. He defined them and outlined methods for the cure of diseased trees. Prof. U. P. Hedrick of Geneva announced that the Legislature had selected a new farm of 100 acres to be added to the Geneva Experiment Station Farms.

The following day, Aug. 12, was spent in inspecting orchards about Hilton. Various orchards were numbered, and a guide book furnished describing each orchard as numbered. As acre after acre of well-cultivated, healthy orchards were passed one could not doubt the outcome of Mr. Remington's prophesy that 10,000 cars would be required for New York's peach crop.

Of especial interest to the visitor was the Hilton cold storage at Collamer Station, one mile west of Hilton. This plant, erected in 1909, is one of the most modern in the country. It is constructed of tile, coated with cement, is lined with three inch sheet cork, and has a capacity of 70,000 barrels. The cooling is done by means of compressed carbonic acid gas.

SILAGE AND CONCRETE SILOS

HOW FARMERS ARE BUILDING SOLID-WALL SILOS

The principal source of profit in dairying, stock-raising, and farming lies in improving the quality and at the same time keeping down the cost of production. In this matter of profit and loss nothing plays such an important part as the question of feeds and feeding. The natural feed for animals, the one on which they do best, is green pasture. In climates subject to frost, man has made the same provision for animals as for himself by providing them in winter with canned green fodder called "silage." Silage is made most commonly from corn, cow peas, clover, sorghum, or alfalfa, merely chopped fine and stored in large water-tight cans known as "silos." In dry weather or in winter, when green pasture cannot be had, this feed is equally good in producing a flow of milk or in putting fat on animals. One acre of a crop harvested as silage will feed twice as much stock as the same amount harvested in any other manner.

Like a glass fruit jar, a silo must be water-tight and jointless to keep the silage from moulding or "dry firing." For this reason, and also because no painting or repairing is ever necessary, solid-wall concrete silos are coming into general use.

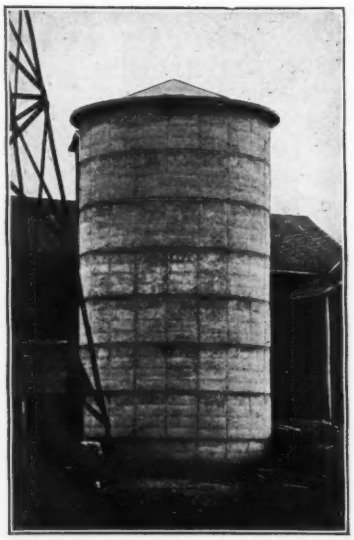
The best silos are built circular in shape. The size depends upon how many animals are to be fed daily, the quantity in pounds for each animal's daily feed, and the number of days it may be necessary to feed them. The silo should be of such size that a layer of silage at least two inches in depth will be removed each day after feeding has begun. This prevents a thin top layer from moulding. A dairy cow requires about 40 pounds of silage per day, and the following table is based on this amount. Forty pounds is also the average weight of a cubic foot of silage.

DIMENSIONS OF SILO ACCORDING TO SIZE OF HERD.

NUMBER OF COWS IN HERD	FEED FOR 180 DAYS				FEED FOR 240 DAYS			
	Estimated Tonnage of Silage Consumed	Size of Silo		Corn Acreage Required at 15 Tons to Acre	Estimated Tonnage of Silage Consumed	Size of Silo		Corn Acreage Required at 15 Tons to Acre
		Diameter	Height			Diameter	Height	
	Tons	Feet	Feet	Acres	Tons	Feet	Feet	Acres
10	36	10	25	2½	48	10	31	3½
12	43	10	28	3	57	10	35	4
15	54	11	29	4	72	11	36	5
20	72	12	32	5	96	12	39	6½
25	90	13	33	6	120	13	40	8
30	108	14	34	7½	144	15	37	10
35	126	15	34	8½	168	16	38	11
40	144	16	35	10	192	17	39	13
45	162	16	37	11	216	18	39	14½
50	180	17	37	12	240	19	39	16
60	216	18	39	14½	288	20	40	19
70	252	19	40	17	336	..	..	..

It is frequently advisable to cut down the average daily ration or to use silage together with other feeds. With this thought in mind, and especially for dry weather feeding in summer, many farmers find it best to build two silos of moderate size instead of one large structure.

Locate the silo where it will be convenient for feeding. Usually it is



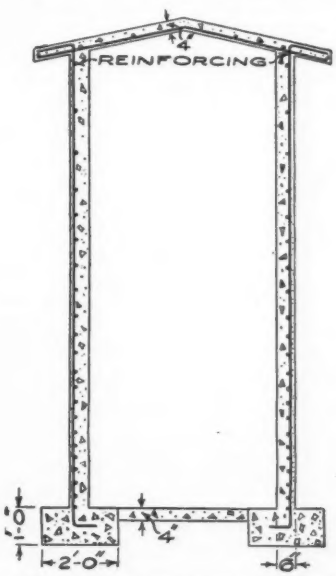
SOLID CONCRETE SILO WITH CONCRETE ROOF.

joined to the barn by means of a chute and passageway with doors. Since the silo and its contents are heavy, it must be built on solid ground. The bottom of the foundation should go below frost line. The silo may, with advantage, extend four to five feet into the ground. Dig the pit large enough to allow for the thickness of the circular walls and a footing two feet wide.

In order to save lumber the concrete is poured into forms which can be moved up as the concrete sets or becomes hard. These movable forms consist of two circular shells three to four feet high, so made that one fits within the other with space between for a six-inch wall. The horizontal framework consists of two-by four-inch timbers cut to a circle, which are covered with sheet metal or wooden lagging. Each piece must be long enough to provide for a six-foot three-inch length of the circumference of the circle as well as several inches for the lap or strap joints. The forms are raised by loosening them at the joints and setting them up again on the finished section of the silo.

Concrete for silos should be rich in Portland cement and should be put into the forms mushy wet. Mix it one part cement to two parts sand to four parts crushed rock. Four parts of clean pit or bank-run gravel may be used instead of the sand and rock. Measure all materials on the basis that one bag of cement equals one cubic foot. Many persons raise the concrete in buckets, but the work can be done more quickly and easily by using a horse together with a derrick or a well braced jib-boom fixed to an adjoining building.

The finished silo shown above is 15 feet in diameter (inside) and 36 feet high, of which four feet is below ground. At odd times all of the materials were hauled, so that there would be no delay when the work was started. After the pit was dug to solid clay, the concrete footings (two feet wide and one foot thick) were placed and a four-inch concrete floor was laid upon the natural clay bottom. The next day the forms were set up, the reinforcement placed, and the walls begun. These forms



SECTION OF CONCRETE SILO SHOWING REINFORCING.

(*Continued on page 28*)

The Cornell Countryman

ALBERT H. WHITE, Editor

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OCTOBER, 1911

Salutations

To the greeting of our Dean, the COUNTRYMAN adds its own cordial greeting to the returning students, to other members of our College, and to the class of 1915.

The question uppermost in the minds of most of us at this time probably is,—how can we get the most out of our college year. The answer is suggested by the name of a little book entitled "How to Live on Twenty-Four *Hours* a Day." Our schedule of studies only occupies about eight of these hours; a better schedule includes a plan for each hour of the twenty-four, though all of these would not wisely be credited to our waking hours. By this time most of us have made out our schedule of studies, and this should continue as our first duty. However, we have a second duty, which is toward the activities of our College, and the hours we are going to devote to them might well be incorporated in our twenty-four hour schedule at this time. The amount of time which may wisely be devoted to activities, varies of course, with the individual, but no education is complete unless ripened by association with one's fellow students, and this is best gained through some form of University or College activity, be it athletic, literary, or in connection with clubs or societies. Enter into some of these now, and continue the connection throughout your course or at least for the year. You owe this much to your College; you owe it to yourself. For the freshmen all of these activities will be explained in detail at their "Get Wise" meeting which no freshman should miss.

Dean Bailey

It is a matter of common report that Dean Bailey has proffered his resignation as Dean of the College. The simple statement of this fact will be received with profound regret by the legions of friends both of the Dean and of the College, and by none more so than by the student body. The name of Dean Bailey has been so long and so intimately associated with our College that it is impossible to think of one without thinking of the other. More than this, the work of Dean Bailey which has won for him world wide fame has reflected a glory on the Collge with which he has so long been associated in the public mind, and our College has thereby been greatly benefited by reason of his great reputation as well as because of his distinguished services. The public services that the Dean has rendered to the College are too well known to be repeated here at this time, but the personal devotion and allegiance of every student has been won to him, and it will

be their earnest hope that the Dean will be persuaded to recall his resignation and continue his work with us. Perhaps there will be such a demonstration of the admiration and affection in which the Dean is held by all with whom he is now associated in the College, and such an emphatic expression of our desire to have him remain with us that he will be unable to resist it and will consent to remain our Dean. If such an expression will have any influence on him, it will certainly be made, and in such a way as will leave no doubt of its depth and sincerity.

In order to better acquaint the students with the various clubs connected with the college, write-ups of the different clubs will appear from time to time. The first one on the Round-Up Club starts with this number.

The Departmental Clubs

THE ROUND-UP CLUB is the student organization of the Animal Husbandry Department, now in its sixth year of successful existance. The club held its first meeting March 25, 1907, and since that time it has met weekly thruout the college year. It is one of the most informal of all the departmental clubs, in fact, it is merely a gathering of students interested in this work, who agree to meet weekly and discuss live-stock topics. There are no dues, anyone may come to the meetings and the only existing rule is that no member shall refuse to do anything in his power for the good of the club. All student activities in this department are carried on thru this organization; the Live-Stock Show during Farmers' Week, being conducted entirely by the members. For anyone interested in Animal Husbandry, one night a week can not be better spent than at one of the Round-Up Club meetings.

The Prize Stock

A speaker at a recent agricultural meeting told of visiting a farmer friend, and of being shown the prize herd of Holsteins before even being introduced to the farmer's wife. Although it may be true that some farmers become so engrossed in their work that they forget that the first prize stock for which the farm stock exists is the *human stock*, yet we believe that discussions which concern directly the farmer and his family themselves, in and about the home will be of vital interest to every farmer. For this reason many such articles will appear in our fall numbers.

FORMER STUDENT NOTES

'01, B.S.A.—Mr. Delos L. Van Dine writes from Estacion Experimental de Azucar, Rio Piedras, Porto Rico. He is entomologist to the Experiment Station of the Sugar Producers' Association of Porto Rico. For seven years after leaving Cornell University he was entomologist of the Hawaiian Experiment Station. For the past two years he has been a special field agent of the Bureau of Entomology.

'72, M.S.—Dr. David Starr Jordan has tendered to President Taft his resignation as International Commissioner of Fisheries. This position was created three years ago under the treaty of April 11, 1908, with Great Britain. Under the terms of the appointment, the work of the commissioner ceases on the completion of the series of fishery regulations of the boundary waters, and the technical

investigations necessary for their completion. This work being finished, the administration of the treaty passes to the Bureau of Fisheries.

* * *

'77, B. S.—The George Washington University has conferred the honorary degree of Doctor of Medicine on Dr. L. O. Howard, chief of the Bureau of Entomology and permanent secretary of the American Association for the Advancement of Science, for "distinguished services to science in relation to preventive medicine." Mr. Howard has recently been elected a member of the American Philosophical Society founded in 1743 for promoting useful knowledge.

* * *

'87, B.S.—Dr. Veranus A. Moore, director of the New York State Veterinary College, received the honorary degree of Doctor of Veterinary Medicine at the recent commencement of the University of Pennsylvania.

* * *

'88, A. B.—The New York State Conservation Commission has appointed Albert E. Hoyt, editor of the Albany *Argus*, secretary of the Commission at a salary of $3,500 a year and expenses.

* * *

'04, B.S.A.—C. W. Howard, Government Entomologist of Portugese East Africa, is now home on leave of absence and plans to spend the year in special entomological work.

* * *

'05, W. A.—William Faulkner is now managing the home farm at Hornell, N. Y. He is carrying on general farming with potatoes and milk as the principal money crops. He is also developing a promising young herd of pure-bred Holsteins.

* * *

'07, B.S.A.—W. H. Alderman, who has been connected with the Geneva Experimental Station, has received the appointment of Professor of Horticulture at the West Virginia Agricultural College.

* * *

'07, Sp. Ag., '08, A.B.—A daughter, Dorothy Alice, was born on May 16, at Butler, N. J., to Mr. and Mrs. Henry Jennings (Golden Alice Ackerman).

* * *

'07, W. A.—J. B. R. Verplanck was married on Wednesday, June 28th, at Fishkill, N. Y., to Susan Van Wyck Andrews, daughter of Mrs. James Andrews. Mr. Verplanck is part owner and manager of the Stony Hill Farms at Fishkill, N. Y.

* * *

'08, W. A.—Ross C. Mead was married on June 14th, at Mapleton, N. Y., to Evelyn Sturtevant, daughter of Mr. and Mrs. S. T. Sturtevant. Mr. and Mrs. Mead are now at home at Newark Valley, N. Y.

* * *

'08, B.S.A.—M. C. Burritt was married on Wednesday, August 9th, at Bergen, N. Y., to Estella May Buell, daughter of Mr. and Mrs. Gilbert Newton Buell. Mr. and Mrs. Burritt will be at home after the first of October at 107 Williams St., Ithaca, N. Y. Mr. Burritt is connected with the office of Farm Management of the U. S. Department of Agriculture, and has assisted in the Winter-Course in Horticulture in the last two winters.

* * *

'08, Sp.—Arthur M. Kruse was married on Saturday, July 1st, at Flint, Mich., to Mabel H. Babcock, daughter of Mr. and Mrs. Wm. P. Babcock. Mr. and Mrs. Kruse will be at home after Aug. 1st at 670 Second Ave., Detroit, Mich.

* * *

'10, B.S.A.—On Tuesday, Aug. 8th, R. D. Anthony was married to Miss Marion Salisbury at Rochester, N. Y. Mr. and Mrs. Anthony were both graduated from the University of Rochester in 1908.

* * *

B.S.A.—E. M. Morrison, '11, and B. D. Gilbert, '10, have been engaged in Soil Survey work in Jefferson County, N. Y. during the past summer. Mr. Morrison is working under the direction of the New York State College of Agriculture, and Mr. Gilbert is in the employ of the U. S. Department of Agriculture.

CAMPUS NOTES

COMING EVENTS

Oct. 2nd, "Get Wise" meeting for freshmen. At this meeting the affairs and activities of both the University and College will be explained in detail to the freshmen.

Oct. 5th, First Assembly for 1911–12. Programme followed by an informal social hour. All members of the College of Agriculture are welcome.

* * *

During the summer an historic landmark has disappeared from our part of the campus. The old barn shown in the frontispiece which was erected in 1881, under the direction of Professor Roberts, and which was in its day a great barn has been torn down. It was here that experiments were conducted by Professor Roberts regarding the production and management of stable manure, that have become standard and are now quoted all over the world. The college, however, will soon have a new and more up-to-date home for this department, for the legislature has appropriated money for new barns and plans are now under way for their construction.

* * *

The Summer School in Agriculture was a pronounced success. There were 128 registered students. The enrollment was twice as great as was expected, and the fact that such a school was desired by the citizens of this state was very strongly emphasized. On Aug. 8th, there was organized a Cornell Summer School Association with the following officers: President, Harper Sibley, (grandson of Hiram Sibley), Rochester; vice-president, John D. Bigelow, Ithaca, N. Y.; secretary, Howard M. Bowen, Sinclairville, N. Y.

Mrs. Rose Morgan, wife of Dean O. S. Morgan of Alfred University, lectured on "Music in Relation to County Life" on July 12. Dr. W. H. Jordan, of the Geneva Experimental Station, spoke on the nineteenth of the same month on, "What we Mean by Agriculture in the Rural Schools." On the twenty-sixth Director Bailey spoke on, "The Survey idea in Country-life Work."

* * *

Several bulletins have been issued by the college during the summer, as follows: Bulletin 297, Studies of Variation in Plants, by Harry H. Love, Assistant Professor of Plant Breeding; Bulletin 298, The Packing of Apples in Boxes, by C. S. Wilson, Professor of Pomology; Bulletin 299, The Elimination of Tubercle Bacilli from Infected Cattle, and the Control of Bovine Tuberculosis and Infected Milk, by Prof. V. A. Moore; Bulletin 300, The Cabbage Aphis, by Glenn W. Herrick, Assistant Professor of Economic Entomology and J. W. Hungate; Bulletin 301, Sweet Pea Studies I, by John Craig, Professor of Horticulture, and A. C. Beal, Assistant Professor of Floricultural; and Bulletin 302, Notes from the Agricultural Survey of Tompkins County, by G. F. Warren, Professor of Farm Management and K. C. Livermore, Assistant Professor of Farm Crops.

* * *

Ground was first broken for the new Poultry building on August 6 and for

the Home Economics building on August 8. Work is progressing rapidly on both structures.

* * *

The photographs on this page shows the park back of the College of Agriculture and the new amphitheatre which has been built into it for outdoor classes.

PARK WOODS NORTH OF COLLEGE OF AGRICULTURE.

On July 28, the examination for the position of District Superintendent of Rural Schools was held at the College. Many of the Summer School students took this examination.

* * *

Assistant Professors White, Needham, Fleming, Love, Gilbert and Reddick have been advanced to full professors and Messrs. Knudson, Livermore, Beal and Barrus to assistant professors. Mr. E. Gorton Davis has been appointed assistant professor of Rural Art. Mr. J. C. Bradley who took his Ph.D. degree at Cornell has been appointed assistant professor of Systematic Entomology to succeed Dr. MacGillivray.

* * *

The training conference for rural leaders, held July 21 to 28 inclusive, at the College was a pronounced success. There were in attendance country ministers, Y. M. C. A. Secretaries, school teachers and principals, farmers and farmers' institute conductors. The program was of exceedingly high character thruout. Many of the Summer School students were present at the evening session. Plans are being made for a similar conference next summer.

* * *

A temporary Farm Mechanics Laboratory has been built near the Animal Husbandry Building. The room formerly used for a Farm Mechanics Laboratory is occupied by the Plant Physiology Laboratory. The Soils Laboratory has also been rearranged so as to accommodate 250 students working in sections.

* * *

The Department of Pomology expects to make large plantings of plum and cherry trees this fall. Their dwarf apple orchard has been spoiled by the work in the lower part of Alumni Field. E. L. Markell and H. B. Knapp are to be assistants in the department this year.

* * *

Professor Leon Bachelor, Professor of Horticulture in the University of Utah, formerly Instructor here, visited the college in August. He took examinations here for the degree of Doctor of Philosophy based on his study of peonies.

* * *

Professor C. S. Wilson was in Virginia on a farm train in the early part of August.

AMPHITHEATRE IN PARK WOODS.

Professor P. J. White has withdrawn to accept a position at the State Agri-

cultural College at Pullman, Washington.

* * *

Professor A. D. MacGillivray has withdrawn from the College to take a position in the Department of Entomology at the University of Illinois at Urbana.

* * *

Professor L. C. Corbett of the Bureau of Plant Industry, U. S. Department of Agriculture, visited Ithaca on August 10th. Professor Corbett received his B.S.A. in 1890 and his M.S.A. in 1896.

* * *

The Department of Dairy Industry has been exhibiting at the State Fair and at various county fairs this year. The exhibits showed methods and value of keeping cow records, uses of Babcock test, lactometer and acidimeter.

Mr. E. S. Guthrie spoke at the Grange picnic at MacLean, N. Y.

* * *

Prof. H. E. Ross delivered an address at the Dairymen's picnic at Otselic, N. Y., on keeping cow records.

* * *

During the past summer, Prof. W. A. Stocking has been investigating the bacteriology of cold storage eggs under the direction of the U. S. Department of Agriculture. Prof. Stocking's headquarters were in Omaha, Neb., where he was given an excellent opportunity of observing the extensive methods of handling cream in large quantities as practiced in the West.

* * *

Ray E. Deuel has been appointed Instructor in Animal Husbandry.

GENERAL AGRICULTURAL NEWS

A Victory for Wild Life

Senator Howard R. Bayne, Assemblyman George A. Blauvelt and their allies have won a notable victory for the game birds and quadrupeds of the State of New York, and other states as well. The Bayne-Blauvelt bill to prevent absolutely the sale in New York State of all wild American game has been passed by the State Senate 38 to 1, it was passed unanimously by the Assembly, it has been signed by Governor Dix, and is now a law.

Stated briefly, the new law absolutely prohibits in New York State, at all seasons, the sale, or importation for sale, of any species of American wild game, save hares and rabbits. Those rodents have been declared a pest to fruit-growers. No longer is it possible for ruffed grouse, pinnated grouse, any American quail, woodcock, snipe, or any American shore-bird, wild goose, brant, or wild ducks of any species, to be sold in the State of New York, no matter where they may have been killed.

The Bayne law provides, however, that certain species of game that can be reared successfully in captivity, and killed by hand, may be sold and consumed, under certain restrictions. It is provided that anyone who wishes to breed and rear game for sale may procure a state license, for $50, under which he may breed, rear and sell under official tags, the following species: elk, white-tailed deer, mallard duck, black duck, and Old World pheasants of all species. All these must be killed and marketed as the law directs, in a manner which will not permit the substitution of any wild game for domestic game. Everything killed is officially tagged, and the metal tags must remain in place until the game is sold and served.

The fight was won solely by the tremendous wave of public sentiment that rolled up behind the bill, and finally swept it through the legislature, with only one vote recorded against it. It is estimated that not fewer than 30,000 letters were written, from all over the State, to Senators and Assemblymen, asking them to support the Bayne bill. It is said that some legislators received between 250 and 300 communications of this nature. The managers of the campaign fur-

nished facts and information, and then asked that the friends of wild life would express their own views on the situation.

Dr. Hornaday declares that "New York is the Gettysburg of the war between the Army of Destruction and the Army of Defense. From this time henceforth, the tide of slaughter of wild life will steadily be rolled back. We will gain more Atlantic States for the Bayne-Blauvelt law, and keep everything that we gain. It is now time for Pennsylvania, Massachusetts and other states to enact our law to stop the sale of wild game, and give the game a chance to return to our desolated fields and woods."

* * *

The Sixth Annual National Dairy Show

The Sixth National Dairy Show held in the International Live Stock Amphitheatre, Chicago, Illinois, Oct. 26 to Nov. 4, inclusive, will not only be the largest but the most attractive and comprehensive in the history of the Exposition. The plans of the Association are to make it intensely educational in every department of the dairy industry it represents, and to establish the annual Exposition as the clearing house of the dairy industry in the United States, Mexico and Canada.

* * *

Canadian Reciprocity

As it stands alone this reciprocity agreement is unjust to farmers. It takes from them the only "protection" that ever did or ever would do them any good, while it retains the tariff on manufactured goods. Standing alone it would compel our farmers along the border to sell in a free trade market and buy needed goods at high tariff prices. But it will not stand alone! Our desire is to give readers the facts without personal feeling or prejudice. We have interviewed many Congressmen so as to learn their personal reasons for supporting this bill. Many of them agree that the border farmers are justified in feeling that they are unfairly treated. They say, however, that a vast majority of the American people demand a fair, downward revision of the tariff. Of all the methods for starting such revision there was nothing practical except this Canadian reciprocity. Any other method would simply have started us on another round of low and high tariff such as we have always had before. That was the argument which carried this bill through Congress, and it will be followed by a general revision which will, we believe, help us all.

We give you what we have found to be the truth about the passage of this bill. The *R. N.-Y.* is not known as a quitter, and we think we have proved our willingness to stand for farmers' rights, but we will all do well to face the fact that the days of high tariff are numbered. We shall learn how little this tariff has really helped us after all. Our advice is to accept the situation, give the new law a fair trial, and devote our energies to the middleman question. We must make a fight for a larger share of the consumer's dollar, and we can get it; while a return to a high tariff is now out of the question.—*R. N.-Y.*

* * *

Annual Meeting

The next annual meeting of the American Association of Farmers' Institute Workers will be held at Columbus, Ohio, November 13 to 15, 1911. At the same place and beginning November 15, will be held the annual meeting of the Association of American Agricultural Colleges and Experiment Stations.

* * *

Shrinkage of Corn in Storage

In order to determine the amount of shrinkage or loss of weight occurring in shelled corn containing various percentages of moisture while in storage in elevators or during transit in cars, the Department of Agriculture, in coöperation with the Baltimore and Ohio Railroad Co. and the Baltimore Chamber of Commerce, has conducted an experiment with 500 bushels of shelled corn, the test beginning January 5, 1910, and lasting 147 days.

The corn used was taken from regular car receipts and was left in the wooden hopper of a 30,000 pound scale at elevator B of the Baltimore and Ohio system at Locust Point, Baltimore. At the time of storage the moisture content was 18.8 per cent. and at the close of the test 14.7 per cent., or a loss of 4.1 per cent. The weight per bushel had decreased from 54.7 pounds to 50 pounds, and the total loss of weight was 1,970 pounds, or slightly more than 7 per cent.

The shrinkage was found not to be constant, as at certain periods there was a retardation in the rate of shrinkage or even a temporary increase in weight due to the absorption of moisture from the atmosphere. The average temperature of the corn and the temperature of the air was 20° F. The shrinkage during the first 105 days, while the corn remained in good condition, was approximately four-tenths of one per cent.; while from April 21 to May 14, during which time the corn went out of condition, becoming sour and hot, with a maximum temperature on May 2 of 138° F, the shrinkage was 2.6 per cent. The shrinkage from May 14, after the corn had been cooled to 35° F, by three elevations to June 1, the end of the experiment, was 2.6 per cent. (Cir. No. 81, Bureau of Plant Industry, U. S. Department of Agriculture.

* * *

Weevil that is Destroying Alfalfa in the West Traced to Asia

Government and State agricultural agents, who have been busily engaged for months in endeavors to trace the source of the alfalfa weevil, which has been creating havoc with this valuable crop in Utah, believe they have succeeded in the quest. They say that the bug has been brought to the United States from far off Russian Turkestan.

A local dealer in seeds some time ago heard that on the plains of Turkestan a fine grade of alfalfa was grown. He determined to test it in Utah and see if he could make an improvement on the native growth. So he sent for a large quantity of the seed and in order to introduce it put the price three or four cents below that charged for the local seed. He made some large sales. It is now said by the agents that they have proof that the weevil appeared this spring at most of the farms on which this seed was sown and from them quickly set out on its work of destruction.

If this is true the seed dealer's experiment appears in the light of a calamity. There had been other enemies of alfalfa, but none that did any great damage, and the crop has been a most important one in connection with the cattle and horse business. With the advent of the weevil this summer, whole fields have been practically made barren, the weevils not contenting themselves with eating the growing plants, but even affecting the roots so that the succeeding crops have been very poor, though the bugs have taken themselves off and invaded adjoining farms.

The situation is so serious that the exportation of Utah alfalfa has been practically forbidden by all the surrounding States. California has established a strict quarantine against it. Measures are now being taken to prevent the shipment of the product from affected districts to other parts of the State. A local commission merchant on opening a car shipped from a southern county found the whole mass sprinkled with the weevils. The Government and State authorities are doing everything in their power to stop the pest, even going over whole fields with oil burners in order to kill the bugs and eggs, too, but so far they have been unable to stop the march of the insects.

—*New York Times.*

(*Continued from page 19*)

were 4 feet high and were made in eight sections six feet three inches long.

Since silage contains so much water, steel rods are necessary as reinforcement to withstand the pressure. To get the best results, this reinforcing should be placed exactly one and one-half inches from the outside of the silo wall. Rods three-eighths of an inch in diameter and ten feet long were used. The vertical rods were spaced 18 inches apart. Measuring down from the *top of the silo*, the horizontal rods were spaced as shown in the tables below.

SPACING OF HORIZONTAL REINFORCEMENT.

Feet distant from *top*	40–35	35–30	30–25	25–20	20–15	15–10	10–0
Spacing in inches	6	7	8	10	12	15	18

The horizontal rods were carefully made into solid hoops by bending the ends so as to hook together. They were also wired to the inside of the vertical rods. (Complete plans for silos may be obtained free from any Portland cement company.) Two extra lengths were placed in the concrete one and one-half inches above the door openings for removing the silage. These openings were made by a removable form (also cut to the circle), which fitted snugly between the molds for the silo wall.

The silo forms were filled with concrete and allowed to stand over night. The next morning they were loosened, raised and again filled. These operations were repeated daily until the side walls were finished.

With a 4-inch concrete roof, the silo is entirely fire- and repair-proof. The roof was built on a temporary wooden roof, which was entirely removed after three weeks. The concrete roof is cone-shaped with a rise in the center of 2 feet and a drip or overhang of 1 foot. One inch from the under side, this roof is reinforced with three-eighths inch rods laid like the spokes of a wheel and spaced 18 inches at the rim. Every other rod reached only halfway to the peak of the roof. To hold the spokes in position so that the concrete could be forced between them and the temporary wooden roof, one ring of three-eighths inch rods was wired to this reinforcing just over the side walls and another half way to the peak. These rods strengthen the roof greatly and must not be left out. Water-soaked weather boards were used to form the circular edge of the roof. An opening for the blower tube from the cutter was formed in the silo roof in the same manner as the doors in the side walls.

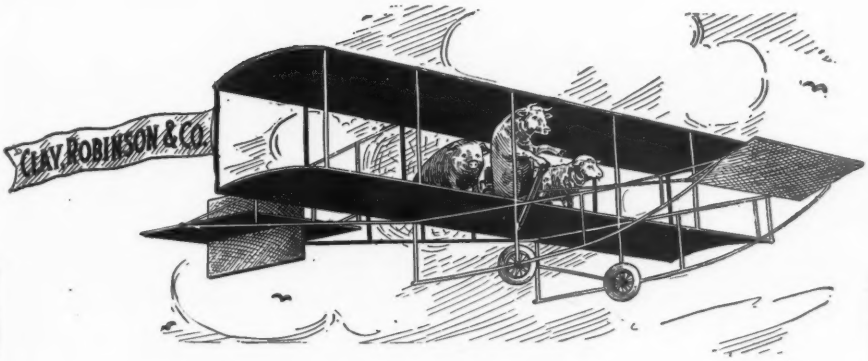
The list of materials required for this silo is given below together with a very liberal estimate of the cost of the same. The silo was built by five farm laborers in thirteen days. As a raise was made each day, the four extra days were spent in framing the forms, digging the pit and building the roof. The owner used gravel from his own farm pit instead of stone and sand.

BILL OF MATERIALS*

Crushed rock, or screened gravel	40 cu. yds. at $1.10	$44.00
Sand	20 cu. yds. at $1.00	20.00
Portland cement	54 barrels at $2.50	135.00
Reinforcing, 425 pieces of ⅜-inch x 10-foot rods	1564 pounds at $0.02¼	39.10
		$238.10

*Consult local dealers as to prices

The *first* cost of concrete silos may or may not be greater than that of the best of any other kind. The time is now at hand when farmers, like railroads and corporations, are considering the lasting qualities of buildings. Concrete silos need no insurance: they do not blow down or burn up. They never have to be painted or repaired. With other kinds of silos during their short lives, these expenses alone equal the first cost. Concrete lasts forever.



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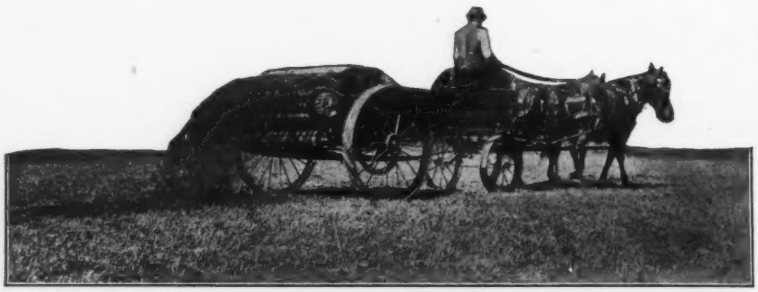

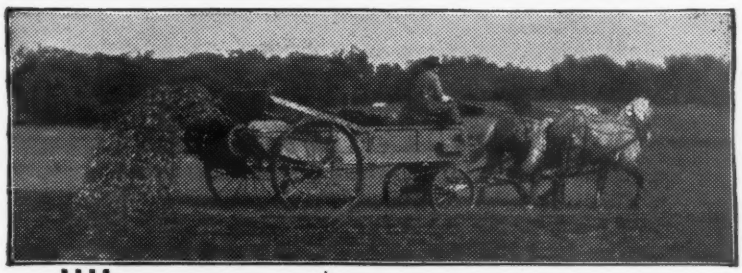

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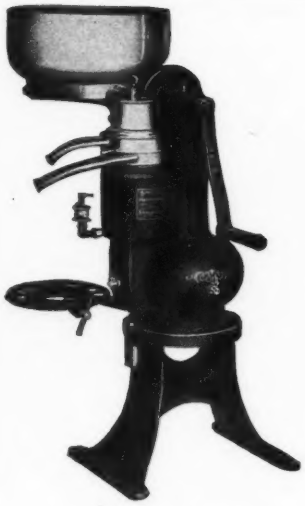

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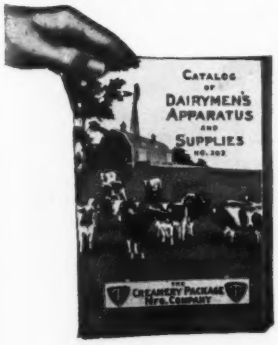

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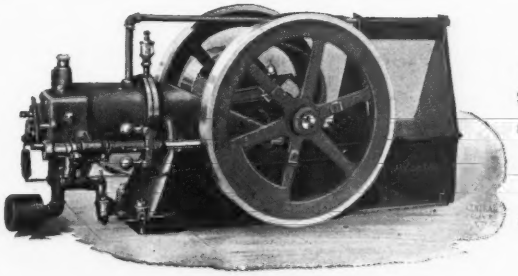

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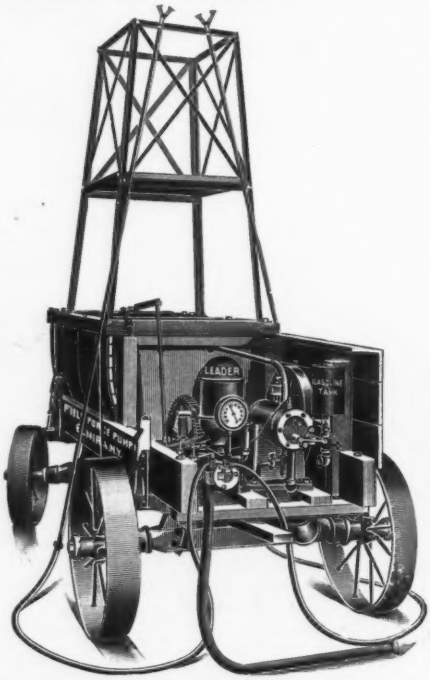

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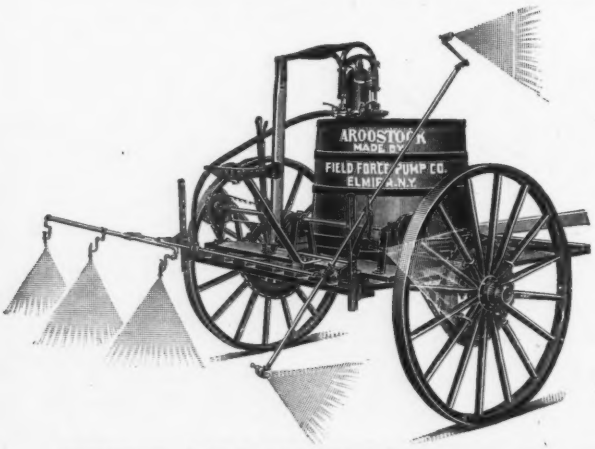

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